



THE PORT AUTHORITY
OF NY & NJ



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N.Y. P.E. (OR R.A.)

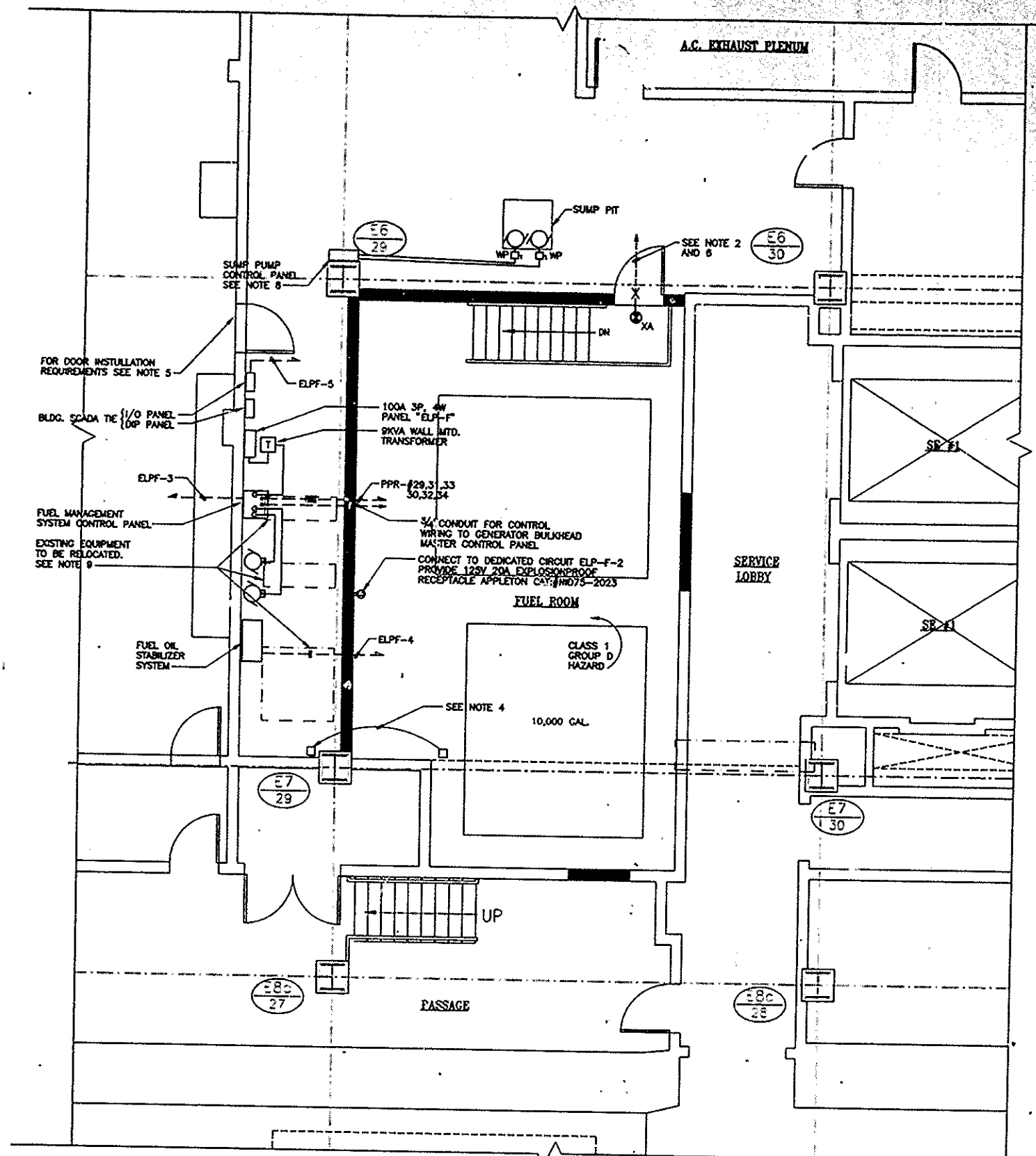
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THE OFFICE OF
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REGISTERED PROFESSIONAL ENGINEER
IN THE STATE OF NEW YORK, No. 12345
EXPIRATION DATE: 12/31/2000

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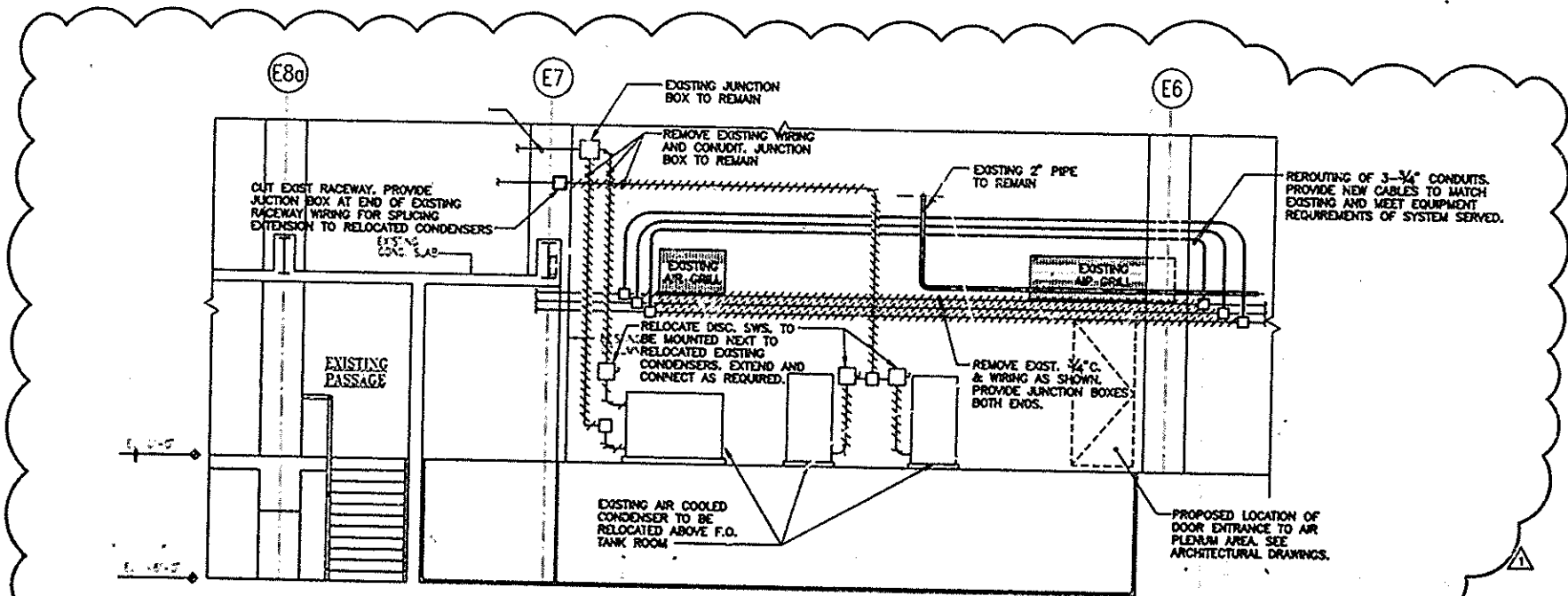
I HEREBY CERTIFY THAT THIS IS A TRUE AND CORRECT
COPY OF ONE OF THE CONTRACT DRAWINGS FOR
SUBSTITUTION PART OF CONTRACT NO. WTC-945-071
IN THE FORM IN WHICH SAID DRAWINGS EXISTED AT
THE TIME THE SAID CONTRACT WAS EXECUTED BY
THE PARTIES.
DATE: 1/16/98 *William A. Adams*
DATE: 4/19/98 *PL. [Signature]*
ENGINEER OF DESIGN



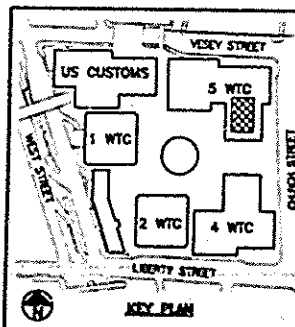
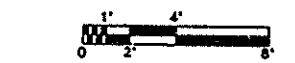
5 WTC PART PLAN B2 LEVEL
FUEL OIL TANK ROOM

- NOTES:**
- FOR GENERAL NOTES SYMBOL LIST DETAILS AND SCHEDULES SEE DWG. E0-01.
 - CONNECT TO NEAREST EXISTING EXT. SIGNS CIRCUIT. PROVIDE CONDUITS EXPLOSION PROOF HARDWARE AND ASSOCIATED WIRING AS REQUIRED.
 - COORDINATE PHASING OF ALL WORK TO MAINTAIN CONTINUITY OF REMAINING CIRCUITS FOR OTHER AREAS.
 - RELOCATE EXISTING FIRE ALARM WIRING BOX, EXTEND & CONNECT WITH NEW RACEWAY TO NEW LOCATION OF BOX. EXTEND AND RECONNECT WIRING AS NEEDED.
 - RELOCATE MECHANICAL SYSTEM PIPING/ EQUIPMENT AND DEVICES FROM SPACE WHERE ACCESS DOOR TO THE EXHAUST PLENUM AREA IS INDICATED TO BE OPEN. REROUTE AND LOCATE EQUIPMENT TO AVOID CONFLICT WITH DOOR LOCATION WITH EXISTING EQUIPMENT AND CLEARANCES.
 - PROVIDE CONDUIT EXPLOSION PROOF SEALING FITTING WITH FIBER FILLERS AND COMPOUND AT EACH CONDUIT ENTERING THE FUEL ROOM ENCLOSURE. CONDUIT SEAL SHALL BE APPLETON ESU TYPE.
 - FOR LIGHTING FIXTURE SCHEDULE SEE DRAWING E2-03.
 - REMOVE EXISTING SUMP PUMP, FEEDER CONDUIT AND CABLE. CONTROL WIRING, DISCONNECT SWITCH ETC., FROM EXISTING SUMP PUMPS UP TO NEAREST JUNCTION BOX AT CEILING. EXTEND FROM JUNCTION BOX WITH NEW WIRING AND CONDUIT TO SUMP PUMP REPLACEMENT CONTROL PANEL AND DISCONNECT SWITCHES AT MOTOR SITE. SUMP PUMP REPLACEMENT TO BE CONNECTED TO SAME CIRCUITS USED FOR REMOVED PUMPING EQUIPMENT. PROVIDE LEVEL CONTROL WIRING IN CONDUIT TO SUIT NEW SYSTEM.
 - THREE (3) EXISTING MECHANICAL FLOOR MTD. A/C UNITS TO BE REMOVED AND RELOCATED ABOVE TANK ROOF. REARRANGE, REROUTE AND EXTEND AND RECONNECT EXISTING BRANCH CIRCUIT WIRING IN CONDUIT, INCLUDING CONTROLS TO RELOCATED EQUIPMENT.
 - PROVIDE BUILDING SCADA SYSTEM INPUT AND OUTPUT (I/O) DEVICE AND MICROPROCESSOR-BASED DIGITAL INSTRUMENTATION PACKAGE (DIP) DEVICES TO INCORPORATE FUEL OIL TANK SYSTEM ALARM AND MONITORING POINTS FOR:
 - FUEL OIL PUMP #1 FAILURE
 - FUEL OIL PUMP #2 FAILURE
 - FUEL OIL PUMP LEAK SENSOR ALARM
 - FUEL OIL PUMP LOW LEVEL ALARM
 - TANK OVER FULL ALARM
 - FUEL OIL STABILIZER SYSTEM:
 - FAILURE DURING FLOW TEST
 - EXCESSIVE WATER IN FUEL
 - WATER STORAGE TANK FULL
 - DIRTY STRAINER
 - DIRTY FILTER
 - LEAKAGE INTO SYSTEM DRIP PAN
 - LEAKAGE INTO WATER SECONDARY CONTAINMENT
 - LOSS OF FLOW FILTRATION CYCLE
 - ADDITIVE TANK EMPTY
 - FUEL OIL TRANSFER PUMPS SET LEAK
 - DIRTY STRAINER
 - HIGH FUEL OIL HEADER LEVEL
 - LOW FUEL OIL HEADER LEVEL
 - FUEL OIL HEADER LEAK
 - FIRE SYSTEM SUMP HEADER VALVE OPEN
 - THE DIP SHALL BE SIEMENS ENERGY AND AUTOMATION SYSTEM MODEL 4720, WITH 125VDC INPUT POWER SUPPLY AND I/O UNIT SIEMENS MODEL 57-I/O. EACH I/O UNIT SHALL BE PROVIDED WITH RS-485 COMMUNICATIONS PORT.
 - COMMUNICATION RS-485 CABLE CONNECTING THE DIP AND I/O UNITS SHALL CONSIST OF #22AWG SHIELDED TWISTED PAIR CABLE IN 3/4" CONDUIT.

PANEL DESIGNATION: <u>ELP-F</u>				LOCATION: <u>SWTC ROOF GENERATOR BULKHEAD</u>			
SERVICE: <u>120/208</u> VOLTS <u>3</u> PHASE <u>4</u> WIRE <u>W/GRD. BUS</u>							
MAINS: <u>100</u> AMPS WITH <u>50</u> AMP MAIN BKR. <u>12</u> POLES							
SERVICE TO:	CONN. KVA	BRANCH CIRCUITS	CONN. KVA	SERVICE TO:	CONN. KVA	BRANCH CIRCUITS	CONN. KVA
LIGHTS	0.7	15 1	2 15 1.2	RECEPTACLES	1.0	15 3	4 15 1.0
F.O. MANAGEMENT SYSTEM CONTROL PNL.	1.0	15 3	4 15 1.0	F.O. STABILIZER SYSTEM	1.0	15 3	4 15 1.0
SCADA I/O PANEL	1.0	15 5	6 15 1.0	SPARE	1.0	15 3	4 15 1.0
SPARE	1.0	15 7	8 15 1.0	SPARE	1.0	15 3	4 15 1.0
SPARE	1.0	15 9	10 15 1.0	SPARE	1.0	15 3	4 15 1.0
SPARE	1.0	15 11	12 15 1.0	SPARE	1.0	15 3	4 15 1.0
SUBTOTALS: 0.7 1.0 1.0				1.2 1.0 1.0			
TOTAL CONN. LOAD: <u>5.9</u> KVA							
DEMAND LOAD + 1.25 SPARE: <u>7.4</u> KVA							
AMPS: <u>21</u>							



WEST ELEVATION OF EXISTING CONDITION
AT F.O. TANK ROOM FOR MODIFICATIONS



STANLEY POWER
5 WORLD TRADE CENTER
ELECTRICAL
5WTC FUEL OIL
TANK ROOM
POWER PLAN

This drawing subject to conditions in contract. All inventions, ideas, designs and methods herein are reserved to Stanley Power and may not be used without its written consent.

F.F.P. M.A.R.
Designed by Drawn by Check by
Date 11/17/97 Scale AS NOTED
Contract Number Drawing Number
WTC-945.071 E3-02